

We claim:

1. A process for the extractive removal of phenols, alcohols, amines, phosphines, hydroxylamines, hydrazines, oximes, imines, water, carboxylic acids, amino acids, hydroxamic acids, sulfinic acids, sulfonic acids, peroxy-carboxylic acids, phosphonous acids, phosphinous acids, phosphonic acids, phosphinic acids or phosphoric acids from aprotic solvents by means of ionic liquids of the formula $[K]_n^+[A]^{n-}$,

where

n is 1, 2 or 3;

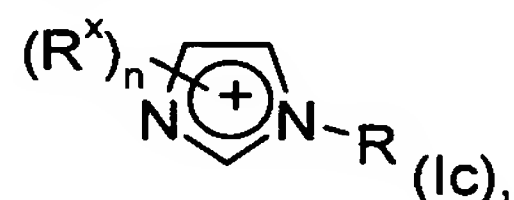
$[K]^+$ is selected from the group consisting of:

- quaternary ammonium cations of the formula $[NR^1, R^2, R^3, R^4]^+$ (Ia),
 - quaternary phosphonium cations of the formula $[PR^1, R^2, R^3, R^4]^+$ (Ib),
- where

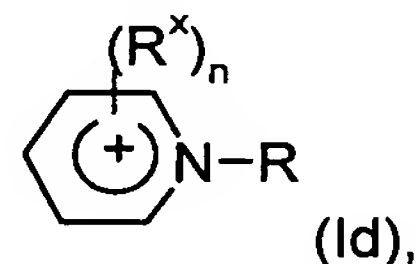
R^1, R^2, R^3, R^4 are each C_1 - C_{12} -alkyl or phenyl- C_1 - C_4 -alkyl, where the aliphatic radicals may bear from 1 to 4 substituents selected from the group consisting of halogen, amino, cyano, C_1 - C_4 -alkoxy and the phenyl ring may bear the abovementioned substituents and also C_1 - C_6 -alkyl, carboxylate and sulfonate groups;

R^1 and R^2 may together form a C_4 - C_5 -alkenylene radical which may be substituted by C_1 - C_4 -alkyl, halogen, cyano or C_1 - C_4 -alkoxy;

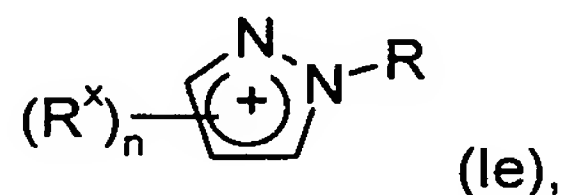
- imidazolium cations of the formula,



- pyridinium cations of the formula,

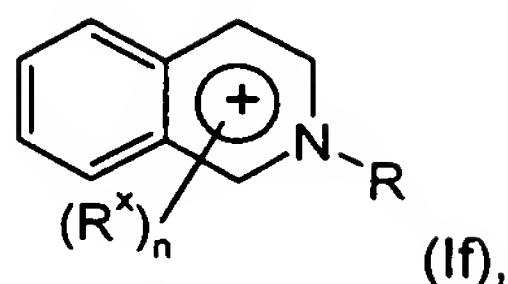


- pyrazolium cations of the formula,

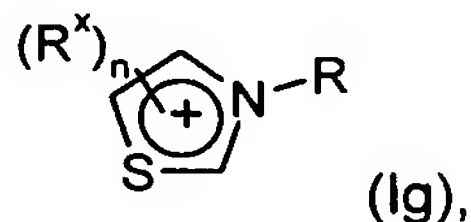


- quinolinium cations of the formula,

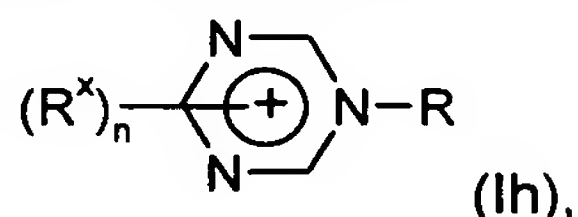
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- thiazolium cations of the formula,



- triazinium cations of the formula,



where the index n and the substituents R and R^x have the following meanings:

n is 0, 1, 2, 3 or 4;

R is hydrogen, C₁-C₁₂-alkyl or phenyl-C₁-C₄-alkyl, where the aliphatic radicals may bear from 1 to 4 substituents selected from the group consisting of halogen, amino, cyano, C₁-C₄-alkoxy and the phenyl ring may bear the abovementioned substituents and also C₁-C₆-alkyl, carboxylate and sulfonate groups;

R^x is C₁-C₆-alkyl, halogen, amino, cyano, C₁-C₄-alkoxy, carboxylate or sulfonate;

[A]ⁿ⁻ is the partly or fully deprotonated anion of an inorganic or organic protic acid H_nA (III), where n is a positive integer and indicates the charge on the anion.

- The process according to claim 1, wherein the organic compound to be extracted is a phenol or alcohol.
- The process according to claim 1 or 2, wherein the aprotic solvent is a hydrocarbon.
- The process according to any of claims 1 to 3, wherein the hydrocarbon is an alkane or halogenated alkane.
- The process according to any of claims 1 to 3, wherein the hydrocarbon is an

arene which is optionally substituted by halogen, nitro, cyano, C₁-C₃-alkyl, C₁-C₃-alkoxy or methoxycarbonyl.

- 5 6. The process according to any of claims 1 to 5, wherein the ionic liquid is an ammonium or imidazolium salt or a mixture of these salts.
7. The process according to any of claims 1 to 6, wherein the ionic liquid is a sulfate or hydrogensulfate.
- 10 8. The process according to claim 1, 6 or 7, wherein a phenol is removed from chlorobenzene.
9. The process according to any of claims 1 to 8, wherein the extracted impurity is separated off from the ionic liquid by distillation.
- 15 10. The process according to any of claims 1 to 8, wherein the extracted impurity is separated off from the ionic liquid by reextraction.
11. The process according to claim 1, wherein water is removed from an aprotic solvent by extraction.
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